In Math 459, students should learn to conduct independent research and to clearly present the results of that research. Hopefully this experience will help students with their senior projects. An additional goal for the course is for all students to learn about a broad range of famous problems in mathematics and application of mathematics.

Each student in Math 459 will prepare a seminar talk for two class periods. Most students will work in pairs, so they will talk for four hours together. The talk will include three homework problems; everyone in the class will do these problems and turn them in to the speaker, who will be responsible for grading the homework and giving me the scores. Each talk should also include at least two ideas for senior projects on the topic.

Many of the topics for seminar talks will be chosen from the text. There is a list attached to this syllabus that includes brief descriptions of the topics from the text, a list of applied topics from a book which will be on reserve at the library, and some alternate topics. You may not do your presentation on your senior project-I had trouble grading the presentations fairly under those conditions.

Note: The text is the "new and revised" edition. If you find a very old copy, it may be the first edition (which was written before the proof of Fermat’s Last Theorem!)

**GRADING POLICY**

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Seminar Presentation</td>
<td>75%</td>
</tr>
<tr>
<td>Homework</td>
<td>25%</td>
</tr>
<tr>
<td>Attendance</td>
<td>see below</td>
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<tr>
<td>Assessment Exam</td>
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The seminar presentation will be graded based on the score sheet which is attached to your syllabus. The score sheet gives additional tips for preparing your talk.

**HOMEWORK**

At the end of the presentation, each speaker will assign three homework problems. I will look at the problems before they are assigned to be sure they are not too easy or too hard. The speakers should grade each problem out of 5 points possible for a total of 15 possible points on the assignment. When you are done grading the homework, return it to me. I will briefly check the grading and record the scores.

**PREPARATION FOR TALKS**

Before you begin working on the details of your presentation, you should meet with me to go
over the outline for your talk. This initial meeting should take place at least a week before your presentation. You should have rough ideas for homework problems and senior projects at this point, but these ideas can be incomplete at this point.

After you have filled in the details, you should meet with me one more time. You may not wait until the day before your talk for this final meeting; at least two days before your talk would be better for both of us. For example, if you are speaking on Thursday you should plan to meet me on Tuesday or earlier. You should have your homework problems, along with their solutions, and senior project ideas at this final meeting.

These two meetings are a minimum; if you have lots of questions, I will be happy to meet you more often. Feel free to make appointments to meet with me outside office hours. We can often meet at 9 after class, or on Tuesday, Thursday, or Friday afternoons. Wednesdays and Monday afternoons are not good meeting times for me.

ATTENDANCE AND EXAMS

Although your scores in the class are based on your presentation and homework, there are two more absolute requirements for passing the class: First, you must attend class regularly. For every three class periods that you miss, your grade will drop by a letter grade. Second, there is an assessment exam for our entire program that you must take during the first two hours of the final exam period of this course (Thursday, December 8, 7:30 am -10 am). Your score on that test will not affect your grade in any way, but you must complete the exam in order to pass Math 459. Sorry for the inconvenience, but this is necessary to help us evaluate our undergraduate major program.

SCHEDULE

For the rest of this week, I will give a presentation to show you what I expect from you. You should immediately start looking over the list of topics; if you know who you want to work with, meet with that person to discuss the topics. I want to know the topic for everyone’s presentation and the days on which they will present by the end of this week. I would ideally like to start student presentations next week, but that will require someone to start preparing IMMEDIATELY. This will be easier for someone who has taken many upper division courses already. See me after class if you are willing to do this. The first person or pair to present will not have to do homework problems on my presentation.